

WHAT IS CLAIMED IS:

1. A method of generating a transmit upconversion frequency in a wireless communication system comprising:

receiving a modulated carrier;

deriving a signal frequency from the rate at which data is being received over said modulated carrier;

locking an oscillator output frequency to said signal frequency; and

using said oscillator output frequency to generate said transmit upconversion frequency.

2. The method of Claim 1, wherein said modulated carrier is modulated at a defined symbol frequency from which said signal frequency is derived.

3. The method of Claim 2, wherein said symbol frequency comprises bits encoded as defined phase states, frequency states, amplitude states, or combinations thereof, of the signal frequency.

4. The method of Claim 1, further comprising:

downconverting said modulated carrier to produce an intermediate frequency signal; and

demodulating said intermediate frequency signal to produce a baseband signal.

5. The method of Claim 4, wherein said downconverting to an intermediate frequency signal is performed using a free-running oscillator

6. The method of Claim 1, wherein said locking comprises controlling an input voltage to a voltage-controlled-oscillator with a phase or frequency locked loop.

7. The method of Claim 1, wherein said modulated carrier is received from a satellite.

8. A method of generating a transmit upconversion frequency in a wireless communication system comprising:

receiving a modulated carrier;

downconverting said modulated carrier to produce an intermediate frequency signal;

demodulating said intermediate frequency signal to produce a baseband signal;

deriving from said baseband signal a signal frequency from the rate at which data is being received over said modulated carrier;

locking an oscillator output frequency to said signal frequency; and

using said oscillator output frequency to generate said transmit upconversion frequency.

9. In a wireless communication apparatus comprising a transmitter and a receiver, a method of generating a transmit upconversion frequency for use by said transmitter, comprising:

extracting a signal frequency related to the symbol frequency or bit rate of received data from a signal received by said receiver;

generating a variable frequency reference signal;

locking said variable frequency reference signal to said signal frequency; and

generating a transmit upconversion signal from said variable frequency reference signal.

10. The method of Claim 9, wherein said symbol frequency comprises bits encoded as defined phase states, frequency states, amplitude states, or combinations thereof, of the signal frequency.

11. In a wireless communication apparatus comprising a transmitter and a receiver, a method of generating a transmission up-conversion frequency, comprising:

extracting a signal frequency from a signal received by said receiver, wherein said signal frequency is related to the rate at which data is being received; and

deriving a transmit upconversion frequency from said signal frequency for use by said transmitter.

12. The method of Claim 11, wherein said signal frequency corresponds to a symbol frequency.

13. The method of Claim 12, wherein said symbol frequency comprises bits encoded as defined phase states, frequency states, amplitude states, or combinations thereof, of the signal frequency.